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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,650	08/07/2003	Yi-Chuan Ding	9246-US-PA	1649
31561	7590	12/09/2004	EXAMINER	
JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE 7 FLOOR-1, NO. 100 ROOSEVELT ROAD, SECTION 2 TAIPEI, 100 TAIWAN			LE, DUNG ANH	
			ART UNIT	PAPER NUMBER
			2818	
DATE MAILED: 12/09/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/604,650

Applicant(s)

DING ET AL.

Examiner

DUNG A LE

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 August 2003 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

Acknowledge is made of applicants' claim for foreign priority base on an application 91118368 filed in TAIWAN on 8/15/2002.

It is noted that Applicants have filled a certified copy of said application as required by U.S.C 119, which papers have been placed of record in the file.

Oath/Declaration

The oath/declaration filed on 8/7/2003 is acceptable.

Election/Restriction

Examiner confirms that Applicants elected to prosecute Claims 1-9 and have cancelled Claims 10-25 without prejudice.

Specification

The specification is objected to for the following reason:

The title of the invention is not descriptive.

A new title is required that is clearly indicative of the invention to which the claims are directed (see MPEP § 606.01).

Note that, the claims are directed to semiconductor device instead of to a method of making a semiconductor device

The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections

Set of claims 1- 5

Claims 1- 5 are rejected under 35 USC 102 (e) as being anticipated by Tsai et al. (US 2003/01849979 A1)

Tsai et al. teaches a substrate, comprising:

a dielectric structure; an interconnection structure 120 interlacing inside the dielectric structure (figs. 1 and 2C); and a solder mask 12 covering the dielectric structure, wherein the solder mask 12 has a coefficient of thermal expansion

substantially equal to the dielectric structure contacting the solder mask [0012] to [0013].

Regarding claim 2, wherein the material of the solder mask is epoxy resin [0013].

Regarding claim 3, is bismaleimide-triazine [0013].

Regarding claim 4, wherein the solder mask 12 (fig. 1) further covers the interconnection structure 120, the solder mask having at least one opening to expose the interconnection structure 120.

Regarding claim 5, wherein the solder mask 12 has the same material as the dielectric structure contacting the solder mask [0013].

Set of claims 6- 9.

Claims 6- 8 are rejected under 35 USC 102 (b) as being anticipated by Ts Markovich et al. (5665526)

Markovich et al. disclose a substrate, comprising: a dielectric structure; an interconnection structure interlacing inside the dielectric structure; and a solder mask covering the dielectric structure (col 1, lines 35-45), wherein the glass

transition temperature of the material used for manufacturing the solder mask is over 200 degree C (col 2, lines 60- 65).

Regarding claim 7, wherein the solder mask further covers the interconnection structure, the solder mask having at least one opening to expose the interconnection structure (col 1, lines 25-30).

Regarding claim 8, wherein the material of the solder mask is epoxy resin (col 3, line 5).

Claim 9 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Markovich et al. in view of Tsai et al. (US 2003/0184979).

Markovich et al. discloses the claimed invention as applied to claim 6 , except for the material of the solder mask is bismaleimide-triazine as cited in current claim.

Tsai teaches the material of the solder mask is bismaleimide-triazine in paragraph [0013].

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the solder mask is bismaleimide-triazine in Markovich et al. 's device, in order to improve with its electricity and reduce in its moisture absorbability, thereby bettering overall reliability of the circuit board [0010].

When responding to the office action, Applicants' are advice to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung A. Le whose telephone number is (571) 272-1784. The examiner can normally be reached on Monday-Tuesday and Thursday 6:00am- 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you

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have questions on access to the Private PAIR system, contact the Electronic Business
Center (EBC) at 866-217-9197 (toll-free).

DUNG A. LE
Primary Examiner
Art Unit 2818

A handwritten signature in black ink, appearing to read 'DLE', is positioned to the right of the printed name and title.